

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 920009

Fluid

Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

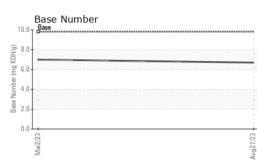
Fluid Condition

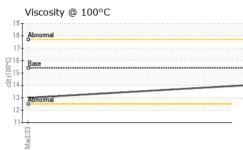
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method				history2
Sample Number		Client Info		GFL0066954	GFL0066959	
Sample Date		Client Info		27 Aug 2023	02 Mar 2023	
Machine Age	hrs	Client Info		8171	6904	
Oil Age	hrs	Client Info		0	6904	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	
Glycol		WC Method		NEG	NEG	
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	16	33	
Chromium	ppm	ASTM D5185m	>20	<1	1	
Nickel	ppm	ASTM D5185m	>5	1	8	
Titanium	ppm	ASTM D5185m	>2	0	0	
Silver	ppm	ASTM D5185m	>2	0	0	
Aluminum	ppm	ASTM D5185m	>20	4	6	
Lead	ppm	ASTM D5185m	>40	0	<1	
Copper	ppm	ASTM D5185m	>330	1	16	
Tin	ppm	ASTM D5185m	>15	1	2	
Vanadium	ppm	ASTM D5185m		0	0	
Cadmium	ppm	ASTM D5185m		0	0	
			12 21 /1			le la transition
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	Method ASTM D5185m	limit/base	current 8	history1 20	nistory2
	ppm ppm					
Boron		ASTM D5185m	0	8	20	
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	8 0	20 0	
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	8 0 65	20 0 71	
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	8 0 65 <1	20 0 71 <1	
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	8 0 65 <1 990	20 0 71 <1 776	
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	8 0 65 <1 990 1192	20 0 71 <1 776 1242	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	8 0 65 <1 990 1192 1009	20 0 71 <1 776 1242 874	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	8 0 65 <1 990 1192 1009 1291	20 0 71 <1 776 1242 874 1112	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	8 0 65 <1 990 1192 1009 1291 3335	20 0 71 <1 776 1242 874 1112 2592	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	8 0 65 <1 990 1192 1009 1291 3335 current	20 0 71 <1 776 1242 874 1112 2592 history1	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	8 0 65 <1 990 1192 1009 1291 3335 current 4	20 0 71 <1 776 1242 874 1112 2592 history1 6	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	8 0 65 <1 990 1192 1009 1291 3335 <u>current</u> 4 5	20 0 71 <1 776 1242 874 1112 2592 history1 6 3	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	8 0 65 <1 990 1192 1009 1291 3335 <u>current</u> 4 5 <1	20 0 71 <1 776 1242 874 1112 2592 history1 6 3 10	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	8 0 65 <1 990 1192 1009 1291 3335 current 4 5 <1 current	20 0 71 <1 776 1242 874 1112 2592 history1 6 3 10 history1	 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 20 imit/base >20	8 0 65 <1 990 1192 1009 1291 3335 current 4 5 <1 <1 current 0.8	20 0 71 <1 776 1242 874 1112 2592 history1 6 3 10 history1 0.9	 history2 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 20 imit/base >20	8 0 65 <1 990 1192 1009 1291 3335 <u>current</u> 4 5 <1 5 <1 0.8 9.3	20 0 71 <1 776 1242 874 1112 2592 history1 6 3 10 history1 0.9 10.5	 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >20 imit/base >30	8 0 65 <1 990 1192 1009 1291 3335 <u>current</u> 4 5 <1 5 <1 0.8 9.3 21.8	20 0 71 <1 776 1242 874 1112 2592 history1 6 3 10 history1 0.9 10.5 22.5	 history2 history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 255 25 20 1imit/base >4 >20 30 1imit/base	8 0 65 <1 990 1192 1009 1291 3335 current 4 5 <1 current 0.8 9.3 21.8	20 0 71 <1 776 1242 874 1112 2592 history1 6 3 10 history1 0.9 10.5 22.5 history1	 history2 history2 history2 history2



OIL ANALYSIS REPORT





VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance	scalar	*Visual	NORML	NORML	NORML	
Odor	scalar	*Visual	NORML	NORML	NORML	
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
Free Water	scalar	*Visual		NEG	NEG	
FLUID PROPE	ERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.0	13.0	
GRAPHS						
Ferrous Alloys						
35 iron						
30 - neessaan chromium						
25 -						
20- 15-						
² 15-						
10-						
5 - 5 -	Section Concession Name					
0			1-01-01-0			
Mar2/23			Aug27/23			
			Bny			
Non-ferrous Meta	ls					
14- copper						
12 -						
10						
E 8						
6						
4						
2-						
			33			
Mar2/2?			Aug27/23			
Z Viscosity @ 100°(_		Au			
19 TUD VISCOSITY @ 100°C	-			Base Number		

10.0

8.

6 (Number 4 (Base

2.0

0.0

Mar2/73

Aug27/23 -

(mg KOH/g)



: WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 916 - Greenbay HC Laboratory Sample No. : GFL0066954 Received : 29 Aug 2023 1799 County Trunk PP Lab Number : 05937024 Diagnosed : 29 Aug 2023 DePere, WI Unique Number : 10622295 Diagnostician : Wes Davis US 54115 Test Package : FLEET Contact: Travis Runge Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. travis.runge@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (920)351-2341 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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Mar2/23

Aug27/23

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